AMCA
THE AMERICAN MOSQUITO CONTROL ASSOCIATION

Individuals enhancing the health and quality of life through the suppression of mosquitoes, other vectors and pests of public health importance.

A Partner in the EPA's Pesticide Environmental Stewardship Program

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It has come to my attention that a bill, labeled *An Act Restricting The Use Of Certain Chemicals That Are Harmful To Juvenile Lobsters* has been introduced to the Connecticut General Assembly to prevent chemicals that are allegedly harmful to juvenile lobsters from being introduced into their habitat.

To be sure, public health professionals, as lobster consumers themselves, are certainly sympathetic to observed declines in lobster populations. Nonetheless, indicting methoprene and malathion based upon unfounded supposition diverts scarce resources from finding and addressing the true culprit(s) and does not further anyone's best interests.

Laboratory findings that demonstrate deleterious effects on crustaceans from methoprene dosages several orders of magnitude in excess of those actually found after applications (Zulkosky et al 2005) should not form the basis of policy decisions on its use. Furthermore, other studies (Gibson 2008, Dove et al. 2005 and Butler 2005) have evaluated the field data to date and found that the 0.05 parts per billion (ppb) of methoprene found at storm drain outfalls poses no risk to lobster larvae in terms of molting or survivability. In addition, dilution well below detectability thresholds occurs within short distances from the outfalls. Miller et al. (2005) studied lobster mortality in western Long Island Sound in 1999 and concluded that: "Model results show that even with an overly conservative model input assumption (i.e., that the entire mass of pesticide applied in the watershed reached the open waters of LIS without any attenuation or decay in either the watershed or the Sound) the calculated 24-hr average ambient levels of methoprene in the Sound were less than 0.0005 ug/L and well below the lowest reported ecologic endpoint of lobster stress (i.e., 2.8 ug/L stage 2 larvae LC50)."

Studies conducted on Long Island in 2006 by scientists from the United States Geological Survey and SUNY at Stonybrook have further concluded that "Neither larvicide nor adulticide active ingredients persist at appreciable levels in marsh surface water more than a couple of hours" after aerial applications.

The fact is that the USEPA, during its initial registration process, determined that methoprene did not adversely impact crustacean populations when used according to label directives. EPA further concluded in 1996 that data support margins of safety of greater than 200X for non-target organisms tested either after acute or chronic exposure. For this reason, EPA mandated that the product labels be changed to remove the label restriction "do not use in fish-bearing waters" from all formulations.

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Valid scientific studies point to a variety of factors as far more plausible explanations for the declines in lobster catch. Gibson (2008) determined that a 1996 oil spill that reduced juvenile populations (Cobb and Clancy 1998), chronic shell disease, paramoeba infestations, elevated water temperatures, hypoxia (Hudon 1994), and overfishing (ASMFC 2006) have all contributed to significant declines in lobster recruitment. Still, in the face of scientific data, special interest groups continue to blame methoprene -- it's a convenient target.

Methoprene is a key component of mosquito control programs nationwide because of its exceptionally low toxicity profile, rapid biodegradation in the environment, and demonstrated efficacy in catch basin treatments critical to West Nile virus control, where intermittent wet/dry cycles might compromise the efficacy of other products. There is simply no other product as well-suited to catch basin treatment with high organic loads. Methoprene is also used in environmentally-compatible manner to control mosquito larvae in many types of wetland environs, natural and man-made. Furthermore, failure resulting from inappropriate or precluded larvicide usage can lead to increased adulticide use, exacerbating pesticide loading at landscape levels.

The bill in question also refers to alleged impacts to lobsters from malathion applications. There has been no evidence of actual adverse impacts to lobsters from operational adulticide applications, and science-based modeling has failed to project such impacts. Laboratory studies that have led some factions to claim adverse impacts did not involve environmentally-relevant concentrations, failed to realistically consider metabolic breakdown rates and environmental fates, or did not consider how, when and where adulticides are actually applied. Labeling mosquitocide products as either the primary cause or contributory to lobster population declines is inaccurate, not substantiated and irresponsible. Such unfounded accusations not only impugn the integrity of the mosquito control profession, but perform a profound disservice to the lobstermen themselves, diverting time, energy and resources that could be much better spent examining and managing the real causes of lobster population declines.

It is critical that the mosquito control profession maintains a robust inventory of proven mosquito control options due to mosquito's prodigious powers of reproduction, and populations can rapidly get out of hand if control measures fail. An ill-advised decision to gratuitously pull methoprene or other mosquitocides from our coastal control inventory would be imprudent, leading to quality-of-life problems that modern society will not tolerate, while placing our citizenry at increased risk from mosquito-borne disease. Furthermore, artificially limiting larviciding options promotes mosquito resistance to the few that are allowed.

The public health profession is becoming increasingly frustrated at being required to interminably defend the use of methoprene and other mosquitocides despite compelling and unequivocal scientific evidence from the EPA and many other sources that these products pose no unreasonable risks to non-target organisms at operational application rates. It is long past time that this issue be brought to closure by responsible parties. The AMCA has consistently presented the facts to the lobstermen and their allies, but seemingly to no avail. It appears that no amount of valid scientific data presented by the AMCA will alter their opinion nor blunt their efforts to point accusatory fingers at mosquitocides as the cause of their ills.

Let's work together to search for answers to this important problem, for the sake of our environment, the lobster industry, and our community's quality-of-life and public health. However, in doing so, let's make certain that answers are based on valid, reproducible science, rather than superstition and innuendo that fly in the face of scientific fact. To this end, AMCA believes that this bill should be withdrawn form consideration from the Connecticut Assembly.

Sincerely,

Joseph M Conlon
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References:

Atlantic States Marine Fisheries Commission (ASMFC). 2006. American lobster stock assessment for peer review. Stock Assessment Report No. 06-03 (Supplement) of the Atlantic States Marine Fisheries Commission. January 2006.

Brownawell, B., S. Terracianno, A. McElroy, J. Ruggieri and R. Barnes. 2006 Detection and fate of pesticides in salt marshes following aerial sprays to control mosquitos. SUNY Stonybrook-USGS. Suffolk County Vector Control and Wetlands Management Long-Term Plan and Environmental Impact Statement Suffolk County Department of Health Services, Yaphank, NY. www.suffolkmosquitocontrolplan.org. 21 pp.

Butler, M. 2005. Catch Basin Ecosystems and Effects of the Mosquito Larvicide Methoprene. PhD Dissertation. University of Rhode Island.

Cobb, J.S. and M. Clancy. 1998. North Cape Oil Spill: an assessment of the impact on lobster populations. Report to the North Cape Oil Spill Trustees. University of Rhode Island, Kingston RI.

Dove, A.D.M., B. Allam, J.J. Powers, and M.S. Sokolowski. 2005. A prolonged thermal stress experiment on the American lobster, *Homarus americanus*. J. Shellfish Research 24(3): 761-765.

Gibson, M. 2008. Lobster Settlement and Abundance in Rhode Island: An Evaluation of Methoprene Application and Other Factors Potentially Influencing Early Survival. Report to the Rhode Island Department of Environmental Management

Hudon, C. 1994. Large-scale analysis of Atlantic Nova Scotia American lobster, *Homarus americanus*, landings with respect to habitat, temperature, and wind conditions. Can. J. Fish. Aquat. Sci. 51: 1308-1321.

Judy, D. and B. Howell (1992) Concentration of Methoprene found in Freshwater Microcosms Treated with Sustained Release Altosid formulations. ABC Laboratories. MRID# 42811202.

Miller, REL, JR Wands, KN Chytalo, and RA D'Amico. 2005. Application of water quality modeling technology to investigate the mortality of lobsters (Homarus americanus) in western Long Island Sound during the summer of 1999. Journal of Shellfish Research 24(1):859-864

Ross, D.H.,*et. al* (1994). Methoprene Concentrations in Freshwater Microcosms Treated with Sustained-Release Altosid Formulations. Jour. American Mosquito Control Association. 10(2): 202-210.

Zulkosky, A.M., Ruggieri, J.P., Terracciano, S.A., Brownawell, B.J., and McElroy, A.E., 2005, Acute toxicity of resmethrin, malathion and methoprene to larval and juvenile American lobsters (*Homarus americanus*) and analysis of pesticide levels in surface water after ScourgeTM, AnvilTM, and AltosidTM application: Journal of Shellfish Research, v. 24, no. 3, p. 795-804.